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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,303	09/24/2003	Hiroshi Hasegawa	116808	2398

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EXAMINER	
YANG, ANDREW GUS	
ART UNIT	**PAPER NUMBER**
2671	

DATE MAILED: 03/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/668,303	HASEGAWA, HIROSHI	
	Examiner	Art Unit	
	Andrew Yang	2671	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 February 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohda (U.S. Patent No. 6,020,890) in view of Tulman (U.S. Patent No. 6,710,775).

With respect to claims 1 and 9, Kohda discloses a plurality of display screens on which an image is displayed by projecting a three-dimensional computer graphics model on a two-dimensional projection plane (column 3, lines 26-29). Kohda also discloses folding three display screens to face inside (column 6, lines 13-15), which defines inner surfaces for displaying images, and arranging and connecting six square display screens to form a die shape (column 6, lines 44-46), a kind of polyhedron. In addition, Kohda discloses an image generating unit 4 in Fig. 1, generating two-dimensional images for each projection plane, based on a viewpoint and direction specified by the viewpoint description unit 2 in Fig. 1 (column 4, lines 12-13 and lines 18-19). Kohda does not expressly disclose dividing the image to be displayed in accordance with the plurality of display surfaces, but it would have been obvious to divide the image in order for the image to span more than one screen, as shown in Fig. 11. However, Kohda does not expressly disclose the use of a perspective system or a vanishing point for each surface.

Tulman, who also deals with displaying images on a two-dimensional surface, discloses a perspective system 204 in Fig. 6 including a vanishing point 210 in Fig. 6 for the object rendered on the screen (column 3, line 56 and column 4, line 3).

Kohda and Tulman are analogous art in that they are in the same field of endeavor, namely displaying images on a two-dimensional display.

At the time of the invention it would have been obvious to one skilled in the art to use the perspective system to display an image as taught by Tulman in the Kohda reference for the benefit of creating the impression of image depth to render realistic images on a two-dimensional plane. Therefore, Tulman in combination with Kohda teach the use of a perspective system including a vanishing point on each of the plurality of display surfaces.

With respect to claims 2 and 10, Kohda discloses the apparatus for displaying images as in claim 1, in which a two-dimensional image is displayed on display screen unit 6b in Fig. 11 and display screen unit 6a in Fig. 11 (column 8, lines 44-51), which displays the image on two adjacent display surfaces. It would have been obvious to one skilled in the art that the displayed image can be of a real image, as real images are commonly used and well known in the art.

With respect to claims 3 and 11, Kohda discloses the apparatus for displaying images as in claim 1, in which a two-dimensional image is obtained by obliquely viewing the front of a three-dimensional computer graphics model 10 in Fig. 11 and displaying the two-dimensional image on display unit 6b in Fig. 11 and display screen unit 6a in Fig. 11 (column 8, lines 44-51), which displays the divided three-dimensional computer

graphics model image on two adjacent display surfaces. Kohda does not expressly disclose dividing the image to be displayed in accordance with the plurality of display surfaces, but it would have been obvious to divide the image in order for the image to span more than one screen, as shown in Fig. 11.

With respect to claims 4-5 and 12-13, Kohda discloses the apparatus for displaying images as in claim 1, in which six square display screens are connected and arranged in a die shape (column 6, lines 44-46), forming a polyhedron with orthogonal, vertical, and horizontal display surfaces.

With respect to claims 6 and 14, Kohda discloses the apparatus for displaying images as in claim 1, including a plurality of display screens on which an image is displayed by projecting a three-dimensional computer graphics model on a two-dimensional projection plane (column 3, lines 26-29) and a projection plane description unit 3 in Fig. 1 that issues an instruction to display an image (column 5, lines 9-10)

With respect to claims 7 and 15, Kohda discloses the apparatus for displaying images as in claim 1, including a plurality of display screens on which an image is displayed by projecting a three-dimensional computer graphics model on a two-dimensional projection plane (column 3, lines 26-29) and an image generating unit 4 in Fig. 1 which generates a two-dimensional image of the three-dimensional computer model (column 3, lines 65-67).

With respect to claims 8 and 16, Kohda discloses the apparatus for displaying images as in claim 1, in which six square display screens can be connected and arranged in a die shape (column 6, lines 44-46), forming a polyhedron in a box shape.

Kohda also discloses folding three display screens to face inside (column 6, lines 13-15), which defines inner surfaces for displaying images. It would have been obvious to include an inner viewing window and set the viewpoint in this window in order to view the inside of the box.

With respect to claims 17 and 18, Kohda discloses the apparatus for displaying images as in claim 1. However, Kohda does not expressly disclose the use of a perspective system or a vanishing point for each surface.

Tulman, who also deals with displaying images on a two-dimensional surface, discloses a perspective system 204 in Fig. 6 including a vanishing point 210 in Fig. 6 for the object rendered on the screen (column 3, line 56 and column 4, line 3).

Kohda and Tulman are analogous art in that they are in the same field of endeavor, namely displaying images on a two-dimensional display.

At the time of the invention it would have been obvious to one skilled in the art to use the perspective system to display an image as taught by Tulman in the Kohda reference for the benefit of creating the impression of image depth to render realistic images on a two-dimensional plane. Therefore, Tulman in combination with Kohda teach the use of a one-point perspective system with one vanishing point for each of the plurality of display surfaces.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patent is cited to further show the state of the art with multiple image display devices:

U.S. Patent No. 5,963,247 to Banitt for a three-dimensional display with one or more surfaces in different configurations

U.S. PGPUB 20020186217 to Kamata et al. for a three-dimensional display apparatus which enables switching between a two-point perspective projection and three-point perspective projection.

Response to Arguments

Applicant's arguments filed on February 1, 2006 have been fully considered but they are not persuasive. Applicant states that Kohda fails to disclose an image display method to display images on a plurality of display surfaces by using a plurality of inner surfaces of a polyhedron as the display surfaces and dividing the image to be displayed in accordance with the plurality of display surfaces. Kohda does not expressly disclose dividing the displayed image, but it would have been obvious to divide the image in order for the displayed image to span more than one display surface as shown in Fig. 11. Applicant also states that Kohda fails to disclose generating images for the plurality of display surfaces so that a plurality of divided images are expressed by using a perspective method having one vanishing point for each of the plurality of display surfaces. Tulman discloses a perspective system including a vanishing point for an object rendered on the screen. Therefore, Tulman in combination with Kohda disclose an apparatus with a vanishing point for each display surface because one vanishing point for a single object displayed on multiple screens can be shared among the screens of Kohda. The applicant does not disclose that each display surface uses a different vanishing point.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Yang whose telephone number is (571) 272-5514. The examiner can normally be reached on 8:30-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on (571) 272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AGY

2/27/06

MARK ZIMMERMAN
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